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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/627,206 | 07/24/2003 | Harry Israel Ringermacher | 120631-1 | 4236 |

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

| EXAMINER | |
|---|---|
| VERBITSKY, GAIL KAPLAN | |
| **ART UNIT** | **PAPER NUMBER** |
| 2859 | |

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/627,206 | RINGERMACHER ET AL. | |
| | Examiner | Art Unit | |
| | Gail Verbitsky | 2859 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *15-22,28 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-22,28,30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 15-20, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zalameda et al. (U.S. 20030193987) [hereinafter Zalameda] in view of Erhardt (U.S. 20020180384/ U.S. 6583588)

Zalameda discloses in Fig. 1 a thermography IR imaging device comprising a flash lamp 54a, 54b heating an object, an IR camera 55 configured to capture plurality of images/ frames, a shutter electronics (actively quenching means) 56 configured to shut the flash lamps and thus, to actively cool them.

Although it is known in the art that any device should have an initial control to initiate an action (i.e., power on/ off), Zalameda does not explicitly teach a control signal T2, in combination with the remaining limitations of claims 15-20 and 24. Zalameda does not explicitly teach to quench the lamp so as to control the lamp duration.

Erhardt discloses a device/ timing controller/ timing generator / clock (logic level signals) comprising a first timer and a second timer, the first timer T_ oper (T0) controlling an operating mode *(control operating mode duration)* of a (illuminating) lamp, and the second timer T_cool (T2) controlling a cooling mode (control) the lamp. There is a power switching means/ device 54 for providing power, and thus, inherently, voltage/ current to the lamp during the operating mode and removing power from the lamp during cooling mode (paragraph [0029]). Power is applied to the lamp at a block 22 and the first timer of the timing controller is initialized at a block 24 and the lamp is at its operating mode. The switching device 54 is controlled by a control circuit

(switch drive circuit) 52 and can be a triac, relay or other switching device (paragraph [0027]) supplying a lamp trigger (on/ off) signal (T1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a control device, as taught by Erchardt, to the device disclosed by Zalameda, so as to have a cyclic heating and cooling control of the illuminating means (lamp), so as to prevent the lamp overheating, as very well known in the art.

3. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zalameda in view of and Narita (U.S. 6759793).

Zalameda discloses in Fig. 1 a thermography IR imaging device comprising a flash lamp 54a, 54b heating an object, an IR camera 55 configured to capture plurality of images/ frames, a shutter electronics (actively quenching means) 56 configured to shut the flash lamps and thus, to actively cool them.

Although it is known in the art that any device should have an initial control to initiate action, Zalameda does not explicitly teach a control signal T2, in combination with the remaining limitations of claims 15, 24 and 29. Zalameda does not explicitly teach to quench the lamp so as to control the lamp duration.

Narita teaches in Fig. 2 to cool an (mercury/ arc, col. 4, line 60) illuminating lamp by actively quenching the lamp by providing cooling means 50, inherently, controlled by a cooling (quench) control signal (T2/ duration control) provided by means 60, or providing current to the lamp by means 60 (T0) which has a starter (lamp trigger signal T1) by which a high voltage pulse is applied to operate the lamp and thus, the lamp is initiated (T2) (col. 5, lines 23-27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the flash lamp disclosed by Zalameda and Erchardt with an arc lamp, as taught by Narita, because both of them are alternate types of heating lamps which will perform the same function, of illuminating/ heating the object whose image is to be taken, if one is replaced with the other.

4. Claims 21-22 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zalameda and Erchhardt as applied to claims 15-20 and 24 above, and further in view of INTEGRATED GATE-COMMUTATED THYRISTORS. Article by Carroll et al. [hereinafter Article]

Zalameda and Erchhardt disclose the device as stated above in paragraph 2.

They do not explicitly teach that the switch is a power semiconductor switch/ an insulated gate bipolar transistor.

Article teaches to use a power semiconductor switch such as IGCT or MOSFET or IGBT since they have very good performance in power and temperature cycling.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the switching device disclosed by Zalameda and Erchardt with a switching device, as taught by Article, because power semiconductors known as IGCT have high speed and reliability, as already suggested by Article, and thus high performance ensuring a high accuracy of cooling the illuminating device.

## *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

**Ina et al. U.S. 20020081111A1** teach in paragraph [0028] quenching a flash or timing the flash (control flash duration.

**Yamada U.S. 4021698** teaches quenching a flash to watch (control) the flash duration.

**Adams et al. U.S. 4831410** teach quenching a flash to control flash duration.

EP 000773469A1 teach automatically quenching a flash to control the flash duration.

Any inquiry concerning this communication should be directed to the Examiner Verbitsky who can be reached at (571) 272-2253 Monday through Friday 8:00 to 4:00 ET.

GKV

*Gail Verbitsky*
*Primary Patent Examiner, TC 2800*

April 14, 2006